

## The Role of High-Intensity Focused Ultrasound (HIFU) in the Treatment of Fibroadenomas: A Systematic Review

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**Abstract :** Introduction: Fibroadenomas are solid, mobile, and non-tender benign breast lumps, with the highest prevalence amongst young women aged between 15 and 35. Symptoms can include discomfort, and they can become problematic, particularly when they enlarge, resulting in many referrals for biopsies, with fibroadenomas accounting for 30-75% of the cases. Diagnosis is based on triple assessment that involves a clinical examination, ultrasound imaging and mammography, as well as core needle biopsies. Current management includes observation for 6-12 months, with the indication of definitive surgery, in cases that are older than 35 years or with fibroadenoma persistence. Serious adverse effects of surgery might include nipple-areolar distortion, scarring and damage to the breast tissue, as well as the risks associated with surgery and anesthesia, making it a non-feasible option. Methods: A literature search was performed on the databases EMBASE, MEDLINE/PubMed, Google scholar and Ovid, for English language papers published between 1st of January 2000 and 17th of March 2021. A structured protocol was employed to devise a comprehensive search strategy with keywords and Boolean operators defined by the research question. The keywords used for the search were 'HIFU', 'High-Intensity Focused Ultrasound', 'Fibroadenoma', 'Breast', 'Lesion'. This review was carried out in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Results: Recently, a thermal ablative technique, High Intensity Focused Ultrasound (HIFU), was found to be a safe, non-invasive, and technically successful alternative, having displayed promising outcomes in reducing the volume of fibroadenomas, pain experienced by patients, and the length of hospitalization. Quality of life improvement was also evidenced, exhibited by the disappearance of symptoms, and enhanced physical activity post-intervention, in addition to patients' satisfaction with the cosmetic results and future recommendation of the procedure to other patients. Conclusion: Overall, HIFU is a well-tolerated treatment associated with a low risk of complications that can potentially include erythema, skin discoloration and bruising, with the majority of this self-resolving shortly after the procedure.

**Keywords :** ultrasound, HIFU, breast, efficacy, side effects, fibroadenoma

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